

1. Applicant Information

Request: Consideration as an early action: Clifton Court Forebay Low-Flow Fish Screens

Consultation re plan: _____

Consultation re: possible covered action: _____

Other (please specify): _____

Applicant Name: Metropolitan Water District of Southern California, Alameda County Water District, Contra Costa Water District, and Zone 7 Water Agency

Legal status (city, special district, firm, individual, etc.): Special Districts

Addresses of applicants:

Metropolitan Water District of Southern California	Alameda County Water District
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Los Angeles, CA 90054-0153

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Contra Costa Water District

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P.O. Box H2O

100 North Canyons Parkway,

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Project Contact information: Leah Orloff (Contra Costa Water District)

Role (officer, attorney, etc.): Alternatives Development Study Project Manager

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Legally Responsible Entity Name (if different than Applicant): N/A

Plan or project purpose narrative, including legal authority. If an action is “urgent,” provide the rationale for urgency.

SB7x-1 Section 85085(c) calls for Early Actions to include “other near term actions as identified in the [Delta Vision] Strategic Plan”, which include a “demonstration fish protection screen at Clifton Court Forebay”.

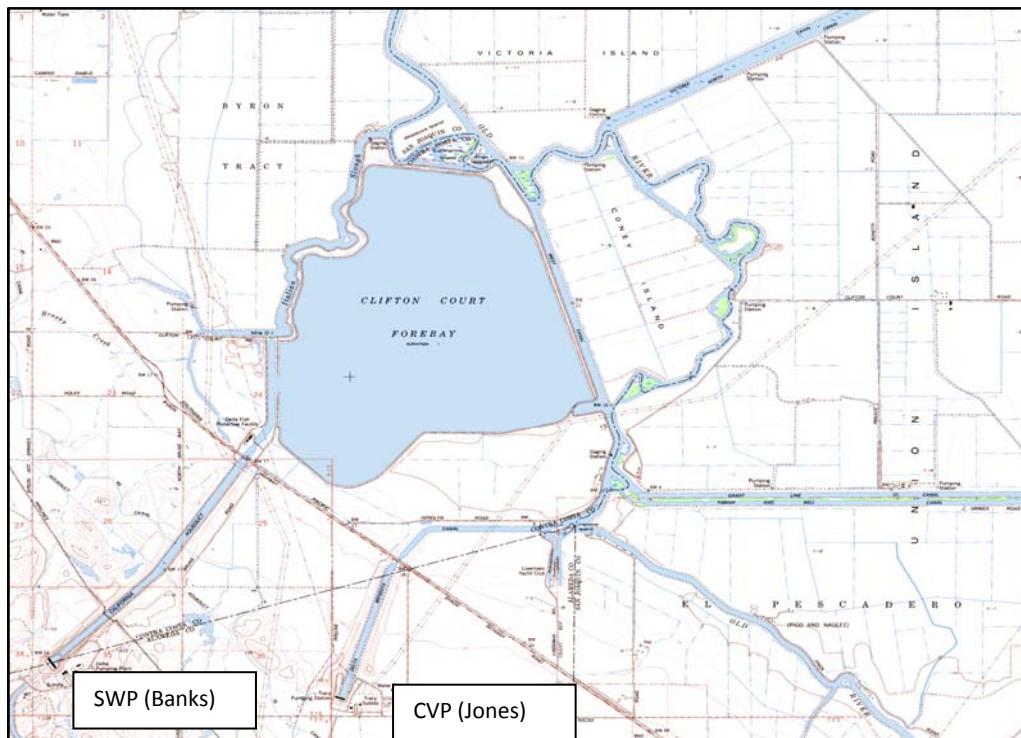
Recently, the focus on screens at Clifton Court Forebay (CCFB) has evolved to consider screens that would operate at low-flow (diversions <2,000 cfs), which is the topic of the early action proposed in this application. Low-flow fish screens at CCFB (Project) have the potential to advance both of the Delta Stewardship Council’s coequal goals by reducing salvage and predation of threatened and endangered fish species at the State Water Project Delta export facilities and by simultaneously increasing water supply reliability for State Water Project and Central Valley Project contractors. Screens could be implemented quickly and help to meet the urgent need to begin addressing ecosystem and water supply reliability needs. Urgent in the Interim Plan context refers to projects or

actions which are needed to respond to the Delta crisis without waiting for completion of the new Delta Plan. This action meets that definition as screens could provide immediate short-term benefits under the existing regulatory regime with existing infrastructure, and could continue to provide benefits in the longer term under a dual conveyance scenario.

This Project includes an Alternatives Development Study (Study), funded by Metropolitan Water District of Southern California (MWD), Alameda County Water District (ACWD), Contra Costa Water District (CCWD), Santa Clara Valley Water District (SCVWD), and Zone 7 Water Agency (Zone 7), which is currently in progress. The Study is evaluating optimal alternatives and locations for the screens, and will include modeling to assess benefits to sensitive species. It is an extension of the 2009 Low-flow Intake Technical Analysis report (LFITA) by the Department of Water Resources and is being conducted with the participation of the fishery agencies. The Study will result in development and recommendations of alternatives for implementation. The Study will also evaluate alternative actions that might also meet the project objectives of minimizing salvage and predation in CCFB and increasing water supply reliability. These recommendations will undergo a formal review by a Delta Science Panel in early 2011. If study results are positive, implementation could be considered as an early action.

Plan or project physical location and description (include geo-referencing latitude and longitude for projects):

The Project would take place at the CCFB, the forebay to the State Water Project's Banks Pumping Plant, located in Contra Costa County at Latitude 37.84 and Longitude -121.58.



CCFB Location

2. Plan or Project Review by Public Agencies

Local Government Discretionary Approval(s):

This Project is in the study phase and no permits are necessary. If Study results are positive and the Project moves forward to the implementation phase appropriate permits will be obtained.

Yes _____ No X If yes, describe:

Delta Protection Commission Consistency Approval(s):

Yes _____ No X

Bay Conservation and Development Commission Permit:

Yes _____ No X

State Lands Commission:

Yes _____ No X

CalTrans:

Yes _____ No X

State Water Resources Control Board Permit:

Yes _____ No X

Regional Water Quality Control Board:

Yes _____ No X Regional Board Number: _____

California Dept. of Toxic Substances Control:

Yes _____ No X

California Department of Fish and Game Streambed Alteration Permit:

Yes _____ No X

DF&G Take Authorization:

Yes _____ No X

Other DF&G Permit:

Yes _____ No X

U.S. Army Corps of Engineers:

Yes _____ No X Public Notice Number: _____

U.S. Fish and Wildlife Service: Take Authorization

Yes _____ No X

Biological Opinion:

Yes _____ No X

NOAA Fisheries 1 Service: Take Authorization

Yes _____ No X

Biological Opinion

Yes _____ No X

U.S. Coast Guard:

Yes _____ No X

Federal Funding:

Yes _____ No X

Describe any history of consideration by any other governmental agency and provide documentation of any actions taken.

DWR has conducted extensive studies of possible implementation of fish screens at CCFB and there have been a number of conceptual alternatives that have been identified for screening up to the entire capacity of the Harvey O. Banks Pumping Plant. Documentation of these efforts is provided in Attachment 1. As focus evolved to emphasis on screening of low flows (diversions up to 2,000 cfs), DWR sponsored an effort to prepare conceptual alternatives for this scenario as documented in The Low-flow Intake Technical Analysis, December, 2009 (LFITA), which is the precursor to this Study.

The California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) have maintained an active interest in minimizing salvage and predation at CCFB, and have been ongoing participants in the discussions and technical advisory groups up to this point, and in the current Study.

3. Environmental Impact Documentation (must be completed by all applicants)

- a.** Is the project statutorily or categorically exempt from the need to prepare any environmental documentation?
Yes _____ No _____ To be determined _____ X _____
If "Yes," please attach a statement that identifies and supports this statutory or categorical exemption.
- b.** Has a government agency other than the Council, serving as the lead agency, adopted a negative declaration or certified an environmental impact report or environmental impact statement on the project?
Yes _____ No X _____
If "Yes," attach a copy of the document. If the environmental impact report or statement is longer than ten pages, also provide a summary of up to ten pages. If "No," provide sufficient information to allow the Council to make the necessary findings regarding all applicable policies. The certified document must be submitted prior to action on the application.

4. Assessment against Delta Reform Act Policy Objectives

NOTE: The Assessments provided here are ones that are expected if the Project is to be considered feasible. However, one purpose of the Study will be to confirm whether the Project can offer the positive effects listed in this section.

Assess the proposed plan or project against the eight policy objectives listed below which "the legislature declares are inherent in the coequal goals for management of the Delta" (WC Section 85020).

Provide a brief summary for the rationale 1 for each assessment and reference to any supporting documentation (include URL links as appropriate).

(a) Manage the Delta's water and environmental resources and the water resources of the state over the long term.

Positive X* Negative _____ Neutral _____ Unknown _____

**Study underway, results pending*

Rationale, magnitude of effect (if positive or negative) and documentation:

The Project could have a positive effect on the environmental resources of the Delta by providing improved protection to sensitive fish species, which under current conditions are subject to mortality from predation in CCFB and salvage at the existing fish facilities. The Project could have a positive effect on the water resources of the state as water could be diverted more reliably at CCFB with fish screens or alternative actions in place.

(b) Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.

Positive X* Negative Neutral Unknown

**Study underway, results pending*

Rationale, magnitude of effect (if positive or negative) and documentation:

The Project may contribute to the protection of key fish species in, and migrating through the Delta, which is critical to supporting the value of the Delta as a recreational fishery.

(c) Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.

Positive X* Negative Neutral Unknown

Rationale, magnitude of effect (if positive or negative) and documentation:

**Study underway, results pending*

The Project may have a direct role in restoring the Delta ecosystem by minimizing salvage and predation of delta smelt and salmonid populations at CCFB.

(d) Promote statewide water conservation, water use efficiency, and sustainable water use.

Positive Negative Neutral Unknown Not

Applicable X

Rationale, magnitude of effect (if positive or negative) and documentation:

(e) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.

Positive X* Negative Neutral Unknown Not

Applicable

**Study underway, results pending*

Rationale, magnitude of effect (if positive or negative) and documentation:

Under current regulatory restrictions to protect fish, water quality reliability is compromised by reductions in flows from the Sacramento River into South Delta. Minimizing salvage and predation in CCFB may allow water quality improvements for in-Delta water users.

(f) Improve the water conveyance system and expand statewide water storage.

Positive X* Negative Neutral Unknown

**Study underway, results pending*

Rationale, magnitude of effect (if positive or negative) and documentation:

The Delta is a critical point in the state water conveyance system. By increasing protection of sensitive fish species by minimizing salvage, the Project could create enhanced reliability by allowing for more reliable pumping.

(g) Reduce risks to people, property, and state interests 1 in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.

Positive _____ Negative _____ Neutral _____ Unknown _____ Not Applicable X

Rationale, magnitude of effect (if positive or negative) and documentation:

(h) Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.

Positive _____ Negative _____ Neutral _____ Unknown _____ Not Applicable X

Rationale, magnitude of effect (if positive or negative) and documentation:

5. Assessment of Administration and Implementation Processes

Cost of Project/Plan: Please provide your best estimate of the total cost of the project or plan you are proposing. If this is a Plan, please provide an estimate of the annual operational or enforcement costs projected for the activity. Please list all sources used for developing the cost estimates

The cost of the Study is \$200K. Preliminary construction cost estimates for conceptual alternatives were made in the LFITA, but would need to be updated.

Financing (provide information on public and private sources of funding, including funds on hand or legally pledged or obligated and the sources of those funds):

The Study has been fully funded by five partner agencies (MWD, ACWD, CCWD, SCVWD, and Zone 7). There are currently no funds identified for the implementation (design, construction, environmental) of the Project.

Identify any public agencies (federal, state and local) whose actions or decisions are essential for the proposed action to succeed. Provide evidence of their approval and support of the proposed action:

CDFG, USFWS, and NMFS will be responsible for permitting, and have been actively involved in the Study. A meeting was held in April, 2009 with fisheries agency management to discuss study parameters and outcomes, and agency staff participated in a technical workshop on August 20, 2010 and will continue to participate in the Study.

If real property must be acquired or use altered for the success of the proposed action, identify the owners of that property and information on how ownership or use change will occur:

Any property owners whose land must be altered or acquired will be identified and contacted once the final alternative has been selected.

Provide a time line for the proposed plan or project, including major milestones through completion:

The Study will be completed by January, 2011, and a Delta Science Review Panel will be convened in early 2011. If Study results are positive and additional funding is located, design and environmental documentation could be completed and construction could begin within 1 year, based on CCWD's experience with the process of screening of an existing Delta diversion at Rock Slough in 2010.

Describe how success or failure of the plan or project 1 will be determined, including measures proposed, time frame and public agency responsible for judging success:

Success of the Project will be measured by reduction in salvage and predation of sensitive fish species.

Describe the major benefits that can result from the proposed plan or project, including identification of beneficiaries and any information on the magnitude and timing of benefits received:

The major benefit of the Project will be a reduction in salvage and predation of delta smelt and salmonid species in CCFB. Direct beneficiaries are the species and the ecosystem. Water users may benefit by having a more reliable supply and/or water quality. Benefits would begin immediately upon installation of the fish screens or alternative actions identified by the Study.

If the proposed plan or project fails, what is done? What additional costs could be incurred and how will they be financed? Identify any lasting effects or changed options for future policy making:

The Project can be adaptively managed for improvement. The effect on future policy making if the Project fails (or is not implemented) would be a continuation of the current level of salvage and predation in CCFB, and a continuation of the current impact on water quality reliability by regulatory actions to protect the fish.

6. Scientific justification (to address requirement for Council use of best available science, Water Code section 85302(g)):

Attach description of scientific justification for the proposed plan or project and provide any pertinent documents. Address the criteria identified in Section 3 when preparing the scientific justification. Provide complete list of all scientific references cited:

There has been a significant background of research leading up to the Study which provides scientific justification for the Study assumptions, methods, parameters and approach. This will allow for a sound base of scientific support for the Study conclusions and determination of Project feasibility or other alternatives.

Predation in CCFB. The need to examine screens at CCFB has been supported by studies that have confirmed that significant predation losses occur in CCFB to juvenile Chinook salmon (Kimmerer and Brown, 2005) and delta smelt. Based on the results of mark-recapture studies, it has been estimated that approximately 75% of juvenile Chinook salmon entering CCFB are eliminated by predation (Gingras 1997). The CALFED Science 2005 Predation Workshop recognized that any delta smelt that survived CCFB and entered the Skinner Fish Facility would not survive the handling process (Kimmerer and Brown 2005). The need to modify the operations and infrastructure to reduce predation at CCFB has been identified in the 2009 NMFS BO (NMFS 2009).

Positive Barrier Screen Effectiveness. The Study assumes that positive barrier fish screens will be utilized, in accordance with the General Principles to Guide Development of Conceptual Fish Screening Proposals (BDCP Fish Facilities Technical Team 2008). The value and effectiveness of positive barrier screens in reducing entrainment has been recognized (Swanson et al. 1994; Swanson et al. 1995; Young et al. 2010, White et al. 2007). The screen efficiencies of positive barrier fish screens have been documented (Weisberg et al 1987). Appropriate screen dimensions (mesh size and vertical bar interval) for delta smelt have been determined based on body size measurements of delta smelt (Young and Cech 1997) based on the method of Margraf et al. (1985).

Screen Operation in a Tidal Environment. CCFB operates in a tidal environment, which presents unique challenges compared to riverine systems, where flow is unidirectional. The effectiveness of a positive barrier fish screen operating at lower flows in the tidal environment has been demonstrated at CCWD's Old River Intake (Holm and Briggs 2000).

Fish Screen Criteria. The Study will determine key values for the selected screen alternatives based on modeling and compare these to fish screen criteria established by NMFS for Chinook salmon and modified by USFWS for delta smelt (NMFS 1997). Fish screen criteria of approach velocity and sweeping velocity are employed to reduce injury to fish from contact and impingement on the screens. A Fish Treadmill at UC Davis has provided extensive research to guide the development of criteria appropriate for delta species (Frink et al. 1998; Hayes et al, 2000; Swanson et al, 1998; Swanson et al. 2000). It has been confirmed that juvenile Chinook salmon are able to survive contacts with fish screens, although it is always desirable to have higher sweeping velocities to minimize exposure time and reduce the number of contacts. (White et al. 2007). For delta smelt, the treadmill studies focused on sublethal effects of stress through screen contact such as impaired reproductive success and growth. Plasma cortisol levels were used as a measure of stress (Swanson et al. 2010). The fish treadmill studies confirmed that the maximum current approach velocity of 0.2 fps (~6 cm/s) used by USFWS is protective of delta across a range of sweeping velocities ranging from 0 to 2 fps.

Fish Fate. An important component of the Study will be to evaluate the fate of screened out fish. A prior PTM study has shown that fish that avoid entrainment at the exports have a greater likelihood of escaping the Delta during low export conditions (Kimmerer and Nobriga 2008).

Life History and Distribution and Monitoring of Fish in the CCFB Area. The Study will take into account the temporal and spatial distribution of fish in relationship to CCFB. The

presence and timing of species in the area of CCFB has been documented in the LFTI from a number of sources (Grimaldo 2004; Moyle 2009). DFG conducts annual fish surveys and maintains a publicly accessible database of the survey results (<http://www.dfg.ca.gov/delta/>).

Models. The Study will employ a two-dimensional finite element model of the Delta developed by Resource Management Associates (RMA). The RMA multidimensional finite element suite of hydrodynamic models have been documented (King 1996), and have been calibrated for flow, stage and water quality in the Delta (RMA 2005). The geometry of the existing model, which currently represents the channels near CCFB as one-dimensional, will be modified to be represented as two-dimensional depth averaged elements (RMA 2010). The RMATRK particle tracking model, simulates particle movement within a flow field generated by the RMA2 or RMA10 hydrodynamic models (De George 1996).

Study Approach.

The Study will ultimately provide another level of peer-reviewed scientific justification as it will undergo a Delta Science Review Panel, which will allow for scientific peer review by experts and a documentation of findings in a formal report. The purpose of the Study is to conduct additional analysis of the conceptual alternatives identified in the LFTI and develop answers to a number of key questions using the best available science, including the use of hydrodynamic and particle tracking modeling tools. These key questions are listed below (CCWD 2010):

- What is the best location for the screens?
- How can predation be limited?
- How can sufficient sweeping velocity be ensured?
- What provisions can be made (such as the use of gates and tidal flows) so that fish saved by the screens can move away from the pumps?
- What are potential indirect impacts and the means to avoid them?
- What is the potential for improved water supply reliability?
- Are there other physical or operational measures that would meet the objectives of the screens?

The Study will incorporate two-dimensional hydrodynamic modeling using the RMA Delta model to determine key fish screen criteria at each alternative such as sweeping velocity and exposure time, and to evaluate fish fate (RMA 2010). The RMA models have a lengthy and successful record and have been recognized as being appropriate for modeling fishery issues in the Delta, (Anderson et al. 2009). A particle tracking model (RMATRK) will be used to simulate the transport of screened out fish and determine their fate. Other PTM models have been developed to evaluate fisheries issues in the Delta (Smith 1993; Miller 2000).

RMATRK has been employed in prior studies of entrainment at CCFB for the 2-Gates project (Anderson et al. 2009). A workshop was held with technical staff from CADFG, NMFS, and USFWS, who provided input on the proposed plan and selected alternatives. Metrics have been developed that will allow for a comparison between the alternatives.

Modeling Plan

A modeling plan has been completed based on the input of the consultant team experts and the fishery agency staff participants (RMA, 2010). Modeling will be conducted using the

current BDCP model boundary conditions to ensure that the results are consistent with the BDCP operational environment.

Other Background Documents

Two recent reports that have been prepared for DWR form the foundation for the current Study. Although not peer reviewed, these documents have been prepared by acknowledged experts in the fish screen community. These are the Fish Passage and Guidance Report (Ott et al. 2008) and the LFITA (DWR 2009). The Fish Passage and Guidance Report provides an evaluation of different screen types and configurations and the associated advantages and disadvantages. The LFITA provided a conceptual analysis of six locations adjacent to CCFB and is a pre-cursor to the Study. Attachment 1 includes 14 technical documents listed in the LFITA that have been compiled by DWR from previous CCFB Fish Intake Planning efforts and were identified as being relevant to the LFITA. Many of these did not have preparers or dates listed, but nonetheless document the efforts and analysis by previous groups that provided the foundations for the current alternatives being considered in the Study. The authors of the LFITA reviewed a more exhaustive list of 60 documents from screening studies and initiatives that had been provided by DWR.

An important document that guides the Study is the General Principles to Guide Development of Conceptual Fish Screening Proposals (BDCP Fish Facilities Technical Team 2008). This document was synthesized by a group of fish screen experts, including representatives from the fishery agencies, as part of the Bay Delta Conservation Plan (BDBP) Fish Facilities Technical Team. As such, it represents the combined scientific and technical expertise of persons well versed in the needs of fish species and the effectiveness of various screen configurations. One of the important principles is the requirement for positive barrier fish screen, which excludes fish altogether without handling. The use of positive barrier fish screens is assumed in the Study and the screens are a proven technology that has been effectively used in a number of locations in the Delta. The principles are listed here:

- Provide a positive, physical fish screen barrier between fish and water intakes;
- Use the most biologically protective fish screen concepts as the foundation of the proposed designs;
- Avoid the need to collect, concentrate, and handle fish passing the water intake;
- Avoid the need for fish bypasses that concentrate fish and increase the risk of predation;
- Do not consider an 'off-channel screen with a bypass back to the river' (most previously considered South Delta fish screens use this configuration) alternative because it is ineffective at achieving primary objectives of avoiding fish mortalities as compared to in channel and on-bank screen alternatives;
- Avoid creating areas where predators may congregate or where potential prey would have increased vulnerability to predation;
- Select screening locations that have desirable hydraulic characteristics (uniform sweeping velocities, reduced turbulence);
- Select screening locations to minimize fish exposure to screens by avoiding stagnant flow conditions;

- Use the best available existing fish screening technology in use such as on-bank vertical flat plate screening systems, in-river vertical flat plate screening systems, or multiple small retrievable screens;
- Use multiple intakes with modules capable of diverting from 500 cfs to 1,500 cfs per screen face with a combined maximum diversion up to 3,000 cfs; and
- Minimize the length of screen intake(s) to reduce the duration of fish exposure to the screen surface.
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Consistency with criteria for Best Available Science

The Study follows the criteria for Best Available Science as described in Section 3 of the Interim Plan.

- **Relevance.** Almost all of the scientific documentation cited for support of the Study is based on research conducted within the Delta. The predator studies that are informing the Study have been conducted within CCFB. The fish screen criteria referenced is regionally based (Southwest) however, the Fish Treadmill studies tested the applicability of these criteria to the species of delta concern.
- **Inclusiveness.** A variety of screen locations, configuration, types and operations have been considered. The current assumptions of a low-flow, positive barrier fish screen with no handling or bypass was determined to be the most protective of fish based on a the expert opinion. The decision to use the current approach and modeling strategy was made after consideration of a number of possible models and methods. The two-dimensional model was determined to be critical to properly model the flows through the Delta and near the proposed intake locations.
- **Objectivity.** The Study is seeking to answer a number of pre-defined questions in an objective fashion. Criteria used to evaluate the alternatives such as approach and sweeping velocity is based on criteria developed external to the Study.
- **Transparency and Openness.** The Study is being conducted as an open process with participation from CDFG, NMFS, and USFWS. Once the Study is completed, the Delta Science Review Panel will provide a forum for public participation and access, as well as vetting the Study conclusions with external experts.
- **Timeliness.** The Study and potential Project are very timely. The Study is being expedited in order to inform key management processes occurring in the Delta such as the Interim Plan, the Delta Plan and the Bay Delta Conservation Plan. The most current modeling from BDCP is being used to ensure that the results are most useful for upcoming decisions. The Study includes a “Blocking Analysis”, which will identify and document the uncertainties, limitations and risks inherent in the Study conclusions.
- **Peer Review.** As shown above, the Study has relied heavily on numerous peer-reviewed materials to inform the current assumptions, methods, parameters and approach. It will continue to rely on the peer review process by allowing for the external Delta Science Review Panel at the conclusion of the Study. The Delta Science Review process involves the selection of independent, unbiased, expert reviewers by the Delta Science program, which is an entity independent of the Study and Project proponents . The Review Panel

will provide its own final report. In addition, any important results of the Study can be documented and submitted for publication and peer review, if applicable.

References

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- Grimaldo, L.F, Miller, R.E., Peregrin, C.M. and Z.P Hymanson. 2004. Spatial and Temporal Distribution of Ichthyoplankton in Three Habitat Types of the Sacramento-San Joaquin Delta. Pages 81-96 in F. Feyrer, L.R. Brown, R.L. Brown, and J.J. Orsi, editors. *Early Life History of Fishes in the San Francisco Estuary and Watershed*. American Fisheries Society, Symposium 39, Bethesda, Maryland
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- Margraf, F.J., Chase, D.M and K. Strawn. 1985. Intake Screens for Sampling Fish Populations: The Size-Selectivity Problem. *North American Journal of Fisheries Management*. 5:210-213.
- Miller, Aaron. 2000. Chapter 5: DSM2 Particle Tracking Model Development. Methodology for Flow and Salinity Estimates in the Sacramento-San Joaquin Delta and Suisun Marsh. 21st Annual Progress Report to the State Water Resources Control Board. California Department of Water Resources. Sacramento, CA.

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Attachment 1: Technical Documents (from LFITA Table 2-1)

#	Title	Description
1	CCFB Short-Circuit Alternative	Contains three CCFB short-circuit diagrams that show potential screen locations and configurations including 1) CCFB short-circuit alternative, 2) Positive barrier fish screen along West Canal with low head pumps and no salvage 3) Potential Old River Intake site
2	Second Stage Construction Plan	Construction plan diagram for Old River site
3	South Delta Facilities Alternatives	Descriptions and Diagrams of 13 CCFB Screen Facilities Alternatives
4	South Delta Fish Facilities Alternatives-Wide Range Draft	South Delta facilities for 17 CCFB screen alternatives (objectives, elements, special operations, assets, liabilities, costs, biological benefits, assumptions, risks, potential fatal flaws). Good summary of alternatives descriptions and biological benefits and risks
5	South Delta Fish Facilities State Water Project Alternative Configurations	Presentation of 17 CCFB screen alternatives that includes detailed descriptions of configurations with advantages and disadvantages, and analysis of costs, cost benefits, salvage efficiencies, and potential fatal flaws
6	South Delta Fish Facilities Alternatives	Presentation of CCFB alternatives focusing on Gunderboom alternatives, which isolate screened water from CCFB
7	South Delta Fish Facilities Implementation Strategy	Presentation of an implementation strategy for South Delta Fish Facilities, which included identification of issues such as louver versus positive barrier effectiveness, debris removal, predators, and age of facilities. Also identified testing needs such as operational hydraulics testing for multi species protection, fish lift testing for fish holding and transportation, lab testing, and collection, handling, transport and release studies. Discussed potential Tracy Fish Test Facility options.
8	Airphotos of CCFB Alternatives	Compilation of aerial photos for CCFB alternatives.
9	Alternatives Development: Practicability of New	Chapter discussion of comparison of multiple screened intake alternative locations and configurations.

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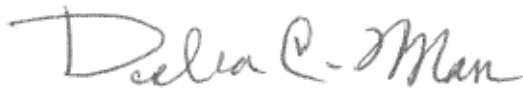
#	Title	Description
	Screened Intake Locations	
10	Office Memo: CCF Fish Facility Planning and Design Nov 2000	SWP Environmental Services Offices memo to DWR Office of Planning on Clifton Court Forebay fish facility planning and design that initiates and focuses the planning and design of the Clifton Court Forebay Fish Facility within DWR, at the interagency level, and with the State Water Contractors.
11	Fish Screening and Fish Passage Analysis of the CALFED Bay-Delta Program Phase II Delta Conveyance Alternatives.	Fish Screening and Fish Passage Analysis Committee Status report, which provides recommendations on CALFED fish facilities planning. Contains a schematic of CCF.
12	Clifton Court Forebay Intake Team Draft Meeting Notes	10/10/2001 meeting minutes (discussed project alternatives document, numerical/physical modeling direction, operating criteria progress, design status).
13	Draft CCFB Northwest (NW) Intake Study For Preliminary Operating Criteria	CCFB NW Intake Study for Preliminary Operating Criteria (2001). Determines preliminary design parameters and operations criteria and assumption for the new intake at CCFB.
14	Italian Slough Conceptual Schematics	Schematic for new intake on Italian Slough. Five-bay inline layout for 13,300-cfs plan.

7. Applicant certifications and authorizations

I certify that all of the information submitted is complete and accurate to the best of my knowledge and that all attached exhibits are full, complete and correct. I certify that I understand that omitted or insufficient information can delay consideration of this application. I certify that this application is not complete until accepted by the Council at a regularly scheduled meeting. I authorize the Council, its staff or other authorized personnel to share this information publicly and authorize their collection of additional information relevant to this application.

Signatures of applicant's representatives

Date



Debra C. Man
Assistant General Manager & COO
Metropolitan Water District



Robert Shaver
Assistant General Manager - Engineering
Alameda County Water District



Greg Gartrell
Assistant General Manager
Contra Costa Water District



Kurt A. Arends
Assistant General Manager
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